

SEQUENCE LISTING

<110> New York Medical College
 <120> Splice Choice Antagonists as Therapeutic Agents
 <130> 51230-00601
 <140> 09/849,967
 <141> 2001-05-08
 <160> 4
 <170> PatentIn version 3.3
 <210> 1
 <211> 1689
 <212> DNA
 <213> chicken

<220>
 <221> misc_feature
 <222> (1)..(1689)
 <223> Full length cDNA sequence of chicken hnRNP A1.

<220>
 <221> misc_feature
 <222> (141)..(1276)
 <223> Open reading frame of cDNA sequence from chicken hnRNP A1.

<400> 1
 gcgtctccac ccctcagcgg gcggcggtga gtgcgccagg ccagcgccgg cgtgggaccg 60
 agcgggcggtg aaggcgcgag ctgaacgctg gcacggtttc ctagatctaa aagaaaggcc 120
 gagttagagt acccttccaa aatggctgct attaaggaag agagagaggt ggaagattac 180
 aagagaaaaa ggaagacgat cagcacaggc catgagccta aggagccaga gcagttgaga 240
 aagctgttca ttggaggtct gagcttcgag acgacggatg atagcttgag agagcacttt 300
 gaaaaatggg gcacactcac ggactgtgtg gtgatgagag acccacaac aaaacgttcc 360
 agaggctttg gctttgttac ttactcttgc gtggaagagg tggatgcggc catgagcgct 420
 cgaccacata aggtggatgg acgtgtggtt gaaccaaaga gagcagtttc aaggaggat 480
 tctgtaaagc ctggggcgca tctcacagta aagaaaatat ttgttggtgg cattaaagaa 540
 gatacagaag aatataatth aagggggtac ttgaaacat atggcaagat cgaaacgata 600
 gaagtcattg aagacagaca aagtggaaag aaaagaggct tcgcttttgt aacttttgat 660
 gatcacgata cagttgataa aattgttggt cagaaatacc atactataaa tggtcataac 720
 tgcaagata aaaaagcact ctcaaaacaa gagatgcaga ctgccagctc tcagagaggt 780
 cgtgggggtg gttcaggcaa cttcatgggt cgtggaaatt ttggaggtgg tggaggaaac 840
 tttggccgag gaggaactt tgggtggaaga ggaggctatg ggggtggtgg tggcggtggt 900
 gggagcagag gaagctttgg ggggtggtgat ggatacaacg gatttgggtga tgggtggcaac 960

tatggaggtg gtcctggcta tggcagcaga gggggttatg gtggtggtgg aggaccagga	1020
tatggaaacc caggtggtgg atatggaggt ggaggaggag gatatggtgg ctacaatgaa	1080
ggaggcaatt ttggaggtgg taattatgga ggcagtggaa actacaatga ctttggtaac	1140
tacagtggac agcagcagtc caattacggt cccatgaaag gtggtggcag ttttggtggt	1200
agaagttcag gcagtcacct tgggtggtgg tatggatctg gaagtggaaag tgggggctat	1260
ggtggtagaa gattctaaaa atgctaccag aaaaagggtc acagttctta gcaggagaga	1320
gagcgaggag ttgtcaggaa agctgcagtt tactttgaga cagtcgtccc aaatgcatta	1380
gaggaactgt aaaatctgcc acagaaggaa cgatgatcca tagtcagaaa agttactgca	1440
gcttaaacag gaaacccttc ttgttcagga ctgtcatagc cacagtttgc aaaaagagca	1500
gctattggtt aatgcaatgt agtgtcgta gatgtacatc ctgaggtctt tatctgttgt	1560
agctttgtct ttcttttttc tttttatatt cccattacat caggtatatt gccctgtaaa	1620
ttgtggtagt ggtacaagga ataaacaaat taaggaattt ttggcttttc aaaaaaaaaa	1680
aaaaaaaaa	1689

<210> 2
 <211> 378
 <212> PRT
 <213> Chicken

<220>
 <221> PEPTIDE
 <222> (1)..(378)
 <223> Amino acid sequence of chicken hnRNP A1

<400> 2

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Arg	Lys	Thr	Ile	Ser	Thr	Gly	His	Glu	Pro	Lys	Glu	Pro	Glu	Gln	Leu
			20					25					30		

Arg	Lys	Leu	Phe	Ile	Gly	Gly	Leu	Ser	Phe	Glu	Thr	Thr	Asp	Asp	Ser
		35					40					45			

Leu	Arg	Glu	Gln	Phe	Glu	Lys	Trp	Gly	Thr	Leu	Thr	Asp	Cys	Val	Val
	50					55					60				

Met	Arg	Asp	Pro	Gln	Thr	Lys	Arg	Ser	Arg	Gly	Phe	Gly	Phe	Val	Thr
65					70					75					80

Tyr	Ala	Thr	Val	Glu	Glu	Val	Asp	Ala	Ala	Met	Ser	Ala	Arg	Pro	His
				85					90					95	

Lys Val Asp Gly Arg Val Val Glu Pro Lys Arg Ala Val Ser Arg Glu
 100 105 110
 Asp Ser Val Lys Pro Gly Ala His Leu Thr Val Lys Lys Ile Phe Val
 115 120 125
 Gly Gly Ile Lys Glu Asp Thr Glu Glu Tyr Asn Leu Arg Gly Tyr Phe
 130 135 140
 Glu Thr Tyr Gly Lys Ile Glu Thr Ile Glu Val Met Glu Asp Arg Gln
 145 150 155 160
 Ser Gly Lys Lys Arg Gly Phe Ala Phe Val Thr Phe Asp Asp His Asp
 165 170 175
 Thr Val Asp Lys Ile Val Val Gln Lys Tyr His Thr Ile Asn Gly His
 180 185 190
 Asn Cys Glu Asp Lys Lys Ala Leu Ser Lys Gln Glu Met Gln Thr Ala
 195 200 205
 Ser Ser Gln Arg Gly Arg Gly Gly Gly Ser Gly Asn Phe Met Gly Arg
 210 215 220
 Gly Asn Phe Gly Gly Gly Gly Gly Asn Phe Gly Arg Gly Gly Asn Phe
 225 230 235 240
 Gly Gly Arg Gly Gly Tyr Gly Gly Gly Gly Gly Gly Gly Ser Arg
 245 250 255
 Gly Ser Phe Gly Gly Gly Asp Gly Tyr Asn Gly Phe Gly Asp Gly Gly
 260 265 270
 Asn Tyr Gly Gly Gly Pro Gly Tyr Gly Ser Arg Gly Gly Tyr Gly Gly
 275 280 285
 Gly Gly Gly Pro Gly Tyr Gly Asn Pro Gly Gly Gly Tyr Gly Gly Gly
 290 295 300
 Gly Gly Gly Tyr Gly Gly Tyr Asn Glu Gly Gly Asn Phe Gly Gly Gly
 305 310 315 320
 Asn Tyr Gly Gly Ser Gly Asn Tyr Asn Asp Phe Gly Asn Tyr Ser Gly
 325 330 335
 Gln Gln Gln Ser Asn Tyr Gly Pro Met Lys Gly Gly Gly Ser Phe Gly
 340 345 350

Gly Arg Ser Ser Gly Ser Pro Tyr Gly Gly Gly Tyr Gly Ser Gly Ser
 355 360 365

Gly Ser Gly Gly Tyr Gly Gly Arg Arg Phe
 370 375

<210> 3
 <211> 320
 <212> PRT
 <213> Homo sapiens

<220>
 <221> PEPTIDE
 <222> (1)..(320)
 <223> Amino acid sequence of human hnRNP A1

<400> 3

Met Ser Lys Ser Glu Ser Pro Lys Glu Pro Glu Gln Leu Arg Lys Leu
 1 5 10 15

Phe Ile Gly Gly Leu Ser Phe Glu Thr Thr Asp Glu Ser Leu Arg Ser
 20 25 30

His Phe Glu Gln Trp Gly Thr Leu Thr Asp Cys Val Val Met Arg Asp
 35 40 45

Pro Asn Thr Lys Arg Ser Arg Gly Phe Gly Phe Val Thr Tyr Ala Thr
 50 55 60

Val Glu Glu Val Asp Ala Ala Met Asn Ala Arg Pro His Lys Val Asp
 65 70 75 80

Gly Arg Val Val Glu Pro Lys Arg Ala Val Ser Arg Glu Asp Ser Gln
 85 90 95

Arg Pro Gly Ala His Leu Thr Val Lys Lys Ile Phe Val Gly Gly Ile
 100 105 110

Lys Glu Asp Thr Glu Glu His His Leu Arg Asp Tyr Phe Glu Gln Tyr
 115 120 125

Gly Lys Ile Glu Val Ile Glu Ile Met Thr Asp Arg Gly Ser Gly Lys
 130 135 140

Lys Arg Gly Phe Ala Phe Val Thr Phe Asp Asp His Asp Ser Val Asp
 145 150 155 160

Lys Ile Val Ile Gln Lys Tyr His Thr Val Asn Gly His Asn Cys Glu
 165 170 175

Val Arg Lys Ala Leu Ser Lys Gln Glu Met Ala Ser Ala Ser Ser Ser
180 185 190

Gln Arg Gly Arg Ser Gly Ser Gly Asn Phe Gly Gly Gly Arg Gly Gly
195 200 205

Gly Phe Gly Gly Asn Asp Asn Phe Gly Arg Gly Gly Asn Phe Ser Gly
210 215 220

Arg Gly Gly Phe Gly Gly Ser Arg Gly Gly Gly Tyr Gly Gly Ser
225 230 235 240

Gly Asp Gly Tyr Asn Gly Phe Gly Asn Asp Gly Ser Asn Phe Gly Gly
245 250 255

Gly Gly Ser Tyr Asn Asp Phe Gly Asn Tyr Asn Asn Gln Ser Ser Asn
260 265 270

Phe Gly Pro Met Lys Gly Gly Asn Phe Gly Gly Arg Ser Ser Gly Pro
275 280 285

Tyr Gly Gly Gly Gly Gln Tyr Phe Ala Lys Pro Arg Asn Gln Gly Gly
290 295 300

Tyr Gly Gly Ser Ser Ser Ser Ser Tyr Gly Ser Gly Arg Arg Phe
305 310 315 320

<210> 4
<211> 1136
<212> DNA
<213> Chicken

<220>
<221> misc_feature
<222> (1)..(1136)
<223> Open reading frame of cDNA for chicken hnRNP A1

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gagcttcgag acgacggatg atagcttgag agagcacttt gaaaaatggg gcacactcac 180
ggactgtgtg gtgatgagag acccacaac aaaacgttcc agaggctttg gctttgttac 240
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acgtgtggtt gaaccaaaga gagcagtttc aagggaggat tctgtaaagc ctggggcgca 360
tctcacagta aagaaaatat ttgttggtgg cattaagaa gatacagaag aatataattt 420
aagggggtac tttgaaacat atggcaagat cgaaacgata gaagtcatgg aagacagaca 480

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aagtggaaag aaaagaggct tcgcttttgt aacttttgat gatcacgata cagttgataa    540
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ctcaaaacaa gagatgcaga ctgccagctc tcagagaggt cgtgggggtg gttcaggcaa    660
cttcatgggt cgtggaaatt ttggaggtgg tggaggaaac tttggccgag gaggaaactt    720
tgggtggaaga ggaggctatg ggggtgggtgg tggcgggtgg gggagcagag gaagctttgg    780
gggtgggtgat ggatacaacg gatttgggtga tgggtggcaac tatggaggtg gtcctggcta    840
tggcagcaga ggggggttatg gtggtgggtgg aggaccagga tatggaaacc caggtgggtgg    900
atatggaggt ggaggaggag gatatgggtg ctacaatgaa ggaggcaatt ttggaggtgg    960
taattatgga ggcagtggaa actacaatga ctttggtaac tacagtggac agcagcagtc   1020
caattacggt cccatgaaag gtggtggcag ttttgggtgg agaagttcag gcagtcacct   1080
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<210> 5
<211> 10
<212> RNA
<213> Homo sapiens

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<220>
<221> misc_feature
<222> (1)..(10)
<223> Exonic splice silencer (ESS) nucleic acid sequence for hnRNP A1

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<400> 5
uagggcaggc                                                    10

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<210> 6
<211> 10
<212> RNA
<213> Chicken

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<220>
<221> misc_feature
<222> (1)..(10)
<223> Exonic splice silencer (ESS) nucleic acid sequence for hnRNP A1

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uagggagggc                                                    10

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<210> 7
<211> 8
<212> PRT
<213> Homo sapiens

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<220>
<221> SITE

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<222> (1)..(1)
 <223> Xaa represents a Lysine or an Arginine

 <220>
 <221> SITE
 <222> (3)..(3)
 <223> Xaa represents a phenylalanine or tyrosine

 <220>
 <221> SITE
 <222> (4)..(4)
 <223> Xaa represents a glycine or alanine

 <220>
 <221> misc_feature
 <222> (7)..(7)
 <223> Xaa can be any naturally occurring amino acid

 <220>
 <221> SITE
 <222> (8)..(8)
 <223> Xaa represents a phenylalanine or tyrosine

 <400> 7

Xaa Gly Xaa Xaa Pro Val Xaa Xaa
 1 5

<210> 8
 <211> 31
 <212> PRT
 <213> Homo sapiens

<220>
 <221> MISC_FEATURE
 <222> (1)..(31)
 <223> hnRNP A1 is defined as a human hnRNP core protein.

<220>
 <221> MISC_FEATURE
 <222> (1)..(6)
 <223> Correspond to amino acids 16 - 21 of hnRNP A1.

<220>
 <221> MISC_FEATURE
 <222> (7)..(7)
 <223> Xaa corresponds to amino acids 22 - 54 of hnRNP A1.

<220>
 <221> MISC_FEATURE
 <222> (8)..(15)
 <223> Correspond to amino acids 55 - 62 of hnRNP A1.

<220>
 <221> MISC_FEATURE
 <222> (16)..(16)
 <223> Xaa corresponds to amino acids 63 - 106 of hnRNP A1.

<220>
 <221> MISC_FEATURE
 <222> (17)..(22)
 <223> Correspond to amino acids 107 - 112 of hnRNP A1.

<220>
 <221> MISC_FEATURE
 <222> (23)..(23)
 <223> Xaa corresponds to amino acids 113 - 145 of hnRNP A1.

 <220>
 <221> MISC_FEATURE
 <222> (24)..(31)
 <223> Correspond to amino acids 146 - 153 of hnRNP A1.

 <400> 8

Leu Phe Ile Gly Gly Leu Xaa Arg Gly Phe Gly Phe Val Thr Tyr Xaa
 1 5 10 15

Ile Phe Val Gly Gly Ile Xaa Arg Gly Phe Ala Phe Val Thr Phe
 20 25 30

<210> 9
 <211> 31
 <212> PRT
 <213> Homo sapiens

<220>
 <221> MISC_FEATURE
 <222> (1)..(31)
 <223> hnRNP A2 is defined as a human hnRNP core protein.

<220>
 <221> MISC_FEATURE
 <222> (1)..(6)
 <223> Correspond to amino acids 11 - 16 of hnRNP A2.

<220>
 <221> MISC_FEATURE
 <222> (7)..(7)
 <223> Xaa corresponds to amino acids 17 - 49 of hnRNP A2.

<220>
 <221> MISC_FEATURE
 <222> (8)..(15)
 <223> Correspond to amino acids 50 -57 of hnRNP A2.

<220>
 <221> MISC_FEATURE
 <222> (16)..(16)
 <223> Xaa corresponds to amino acids 58 - 101 of hnRNP A2.

<220>
 <221> MISC_FEATURE
 <222> (17)..(22)
 <223> Correspond to amino acids 102 -107 of hnRNP A2.

<220>
 <221> MISC_FEATURE
 <222> (23)..(23)
 <223> Xaa corresponds to amino acids 108 - 140 of hnRNP A2.

<220>
 <221> MISC_FEATURE

<222> (24)..(31)
<223> Correspond to amino acids 141 - 148 of hnRNP A2.

<400> 9

Leu Phe Ile Gly Gly Leu Xaa Arg Gly Phe Gly Phe Val Thr Phe Xaa
1 5 10 15

Leu Phe Val Gly Gly Ile Xaa Arg Gly Phe Gly Phe Val Thr Phe
20 25 30

<210> 10
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(12)
<223> hnRNP B1 is defined as a human hnRNP core protein.
Correspond to amino acids 3 - 14 of hnRNP B2.

<400> 10

Lys Thr Leu Glu Thr Val Pro Leu Glu Arg Lys Lys
1 5 10